DOCUMENT RESUME

ED 160 253 PS 010 186

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TITLE The Effect of Rhyme on Preschool Children's Retention of Thematic Information.
PUB DATE 78
NOTE 14p.; Paper presented at the Annual Meeting of the Eastern Psychological Association (49th, Washington, D.C., March 29-April 1, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cognitive Processes; Language Patterns; Memory; Performance Factors; *Preschool Children; *Prose; Reading Readiness; *Recall (Psychological); *Recognition; Research; *Retention Studies
IDENTIFIERS Rhymes

ABSTRACT

This study examined the effect(s) of rhyme on the recognition and recall of story events by 32 nursery school children at the University of Maine Child Study Center. Although subjects reported liking stories better when they were presented as nursery rhymes rather than prose passages, recognition of story events was significantly higher for prose than for rhyming presentations. The findings suggest that the two presentation formats may evoke different levels of information processing which result in differential levels of retention. (Author/SE)

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The Effect of Rhyme on Preschool Children's Retention of Thematic Information

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Running Head: Rhymes and Prose

Portions of this paper were presented at the annual meetings of the Eastern Psychological Association, Washington, D.C., 1978. Thanks are extended to Betsy Liller for providing the voice of Mother Goose.

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Abstract

This study was conducted to determine the effect(s) of rhyme on the recognition and recall of story events by nursery-school children. Although subjects reported liking stories better when they were presented as nursery rhymes rather than as prose passages, recognition of story events was significantly higher for prose than rhyming presentations. The findings suggest that the two presentation formats may evoke different levels of information processing (cf. Craik & Lockhart, 1972) which results in differential levels of retention.

Nursery Rhymes and Prose Passages: Preschoolers' Liking and Retention of Story Themes

Individuals who are familair with children's literature may realize that rhyme is frequently used as a vehicle for instruction with young children. In fact, rhyme is commonly assumed to facilitate children's learning of new information (Chukovsky, 1963; Hildebrand, 1976; Read, 1976). Such facilitation is thought to occur because the presence of rhyme supposedly increases children's liking of verbal material and thereby increases the amount of attention they pay when that material is presented.

Little research, however, has been designed to examine the effect of rhyme on information processing by preschool children. The studies that have been done in this area (e.g., Brown, 1977; Conrad, 1971, 1972; Hayes & Rosner, 1975; Hayes & Schulze, 1977; Locke & Locke, 1971) have tended to examine children's short-term retention of discreet lists of rhyming versus nonrhyming stimuli. No one has assessed preschoolers' retention of story themes presented in prose versus nursery rhyme formats. Furthermore, in all of the studies listed above, phonetic similarity has been reported to have little effect on preschool children's memory. Thus, it has been suggested that nursery-school children cannot differentiate rhyming from nonrhyming materials (Calfee, Chapman, & Venezky, 1971), although recent evidence suggests that primary-grade children can make such discriminations (Jusczyk, 1977).

At a theoretical level, the assumption by Read (1976) that rhyme increases attention to material does not necessarily lead to the prediction

that increased retention will result. Consider the issue in terms of a levels of processing approach to memory functioning (cf. Craik & Lockhart, 1972). It is assumed in this model that information is processed at different levels, with processing of semantic features producing higher retention than processing of phonetic characteristics. If children really are attracted to phonetically similar words and phrases (Chukovsky, 1963), then such attraction may predispose them to attend more to the phonological than semantic characteristics of those phrases; or at least cause them to process phonetic features more extensively than they do in the absence of rhyme. Thus, rather than increasing retention, presenting material in a rhyming format may interfere with children's retention because such presentation predisposes a rather superficial level of processing.

Because rhyme occurs frequently in educational material for young children and because the detection of phonetic similarity is thought to be an important precursor of reading readiness (Rozin & Gleitman, 1977), the present study was designed to assess the effect of rhyme on young children's retention of story themes. The major purpose of the study was to determine whether preschoolers (a) remember story events presented in nursery-rhyme form better than in a prose format and (b) like the same story told in nursery-rhyme form better than in prose. In conjunction with these purposes, the study was also designed to assess whether young children can discriminate rhyming from nonrhyming passages.

Method

Subjects

Thirty-two preschool children between three- and five-years of age (mean CA = 54 months) served as subjects. All of the children were

enrolled in the Child Study Center at the University of Maine. The sample included 16 male and 16 female children. Two additional subjects were excluded from the sample because of their failure to comply with task instructions.

Materials

Four sets of stimulus materials were used in the study: two different stories ("Old Dame Trot" and "The Little Turtle") were prepared in nursery rhyme as well as prose form. First, the stories were selected from books of children's nursery rhymes as ones that were relatively unfamiliar to most preschool children. Both nursery rhymes were altered slightly from their original form in order to make them more comprehensible to young children. A prose version was then written for each of the two poems, with the rhyming phrases of each poem reordered across the prose passages. Thus, both versions of the narrative contained the same story events. Table 1 presents an example of the prose and rhyming versions for one of

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Insert Table 1 about here

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the two stories. All of the stories were tape recorded, with the two versions of each story equated for voice of speaker and presentation duration (on an interstanza basis). Presentation time for the stanzas ranged from seven to twelve seconds. Other materials included a set of smiling, neutral and frowning faces that were comparable to the liking scale used by Siebold (1972).

Procedure

The basic task was one in which individual subjects listened to one of the two stories and then answered a series of recall and recognition

questions about the story's content. Initially, each subject was given a short pretraining session to familiarize him or her with task procedures. All of the children were instructed to listen closely to the story because they would be asked some questions about what they heard. One-half of the subjects were assigned to a Rhyme Condition in which they were administered one of the two nursery rhymes. The remaining subjects were assigned to a Prose Condition in which they were presented a prose version of the stories.

Immediately after each stanza or passage was presented, the subject was asked both a recall question, e.g., "Where did Old Dame Trot go?" and a recognition question, e.g., "Was Old Dame Trot's cat on her _____ (a) shoulder; (b) knee; (c) head; (d) back?" The order of presenting the two types of questions was counterbalanced across subjects. Each question was presented aurally. It is important to note that (a) subjects in both conditions answered an identical set of recall and recognition questions and (b) the alternatives for the recognition questions contained no distractors that rhymed with the correct answer or the rhyming words for that stanza. Children's responses for the retention tests were self-paced and the questions were repeated for the subject, if necessary. A total of eight questions were asked of each subject, two following the presentation of each passage. At the end of each testing session, subjects indicated how much they liked the story they had just heard by pointing to a smiling, neutral or frowning face on the Siebold (1972) liking scale.

Results

Table 2 presents the percent of correct retention according to condition and question type. Preliminary analyses revealed no difference in retention for sex of subject. Thus, the trends in the Table were

tested by a three-factor analysis of variance, with question-type (recognition vs. recall) as a within-subjects factor and condition (Rhyme vs. Prose) and question-order (recognition first vs. recall first) as between-subjects variables.

Insert Table 2 about here

The analysis of variance revealed a significant main effect for question-type, $F(1,28) = 47.23$, $p < .01$. However, the interaction of condition with question-type was also reliable, $F(1,28) = 10.60$, $p < .01$, which Scheffe' tests ($p = .05$) revealed stemmed from significantly lower recognition of story events in the Rhyme than Prose Condition. As is apparent in Table 2, no intercondition difference was found in the level of correct recall. The interaction of question-type with question-order was also significant, $F(1,28) = 8.37$, $p < .01$. Scheffe' tests indicated this interaction to stem from higher recall by subjects who received the recall questions first rather second. No difference in correct retention was found for the order of administering the recognition questions. No other interactions were reliable.

In a supplementary analysis, tabulation of liking responses indicated that children enjoyed the stories presented as nursery rhymes more than when they were presented in prose form $t\ (30) = 2.20$, $p < .05$. The percent of subjects selecting the smiling face as indicative of their level of story liking was 75% and 44% in the Rhyme and Prose Conditions, respectively

Discussion

The major findings of this study are (a) recognition memory in young children is lower when a story is presented in rhyme than prose

form and (b) preschool children like at least these stories presented as nursery rhymes better than as prose. Both of these findings suggest that preschool children can discriminate rhyming from nonrhyming passages, which is similar to the finding reported by Juscyzk (1977) with older children.

Contrary to common assumption (Chukovsky, 1963; Hildebrand, 1976; Read, 1976), however, these data demonstrate that rhyme can interfere with children's comprehension and/or short-term retention of story material. Even under the condition of free recall, in which adults often use phonetic similarity as a retrieval cue to enhance retention (cf. Shulman, 1971), rhyme did not serve to increase correct performance. Given recent findings on young children's spontaneous use of retrieval cues (Gordon & Favell, 1977), this type of mnemonic strategy may be far to sophisticated to be used by preschool children.

It is interesting to consider why the interference effect for recognition memory occurred. One explanation might be that some characteristic of the nursery rhyme other than phonetic similarity per se (e.g., differences in rhythmical structure, syntactic structure, or temporal order of presenting story events) produced the difference in retention. The first of these possibilities seems implausible since consistent breaks in rhythm (e.g., those contained in the nursery rhymes) have been shown to facilitate rather than interfere with adults' short-term retention (Glanzer, 1976). Furthermore, Jusczyk (1977) has reported that first-grade children are relatively insensitive to rhythmical differences in verbal material. The possibility that reordering the story events produced the interference effect also seems implausible given Glenn's (1978) recent finding that the temporal relationship between story episodes does not have a large impact on the

level of young children's retention.

To gain some insight into whether syntactic differences might underly the interference effect, 74 undergraduates listened to each of the tapes in a mass testing situation. They were asked to judge which version of each story was most difficult to understand. It was found that the prose versions were judged by 53% of the students as being more difficult to comprehend than the nursery rhymes. Although it certainly is the case that preschool children might make very different judgments under similar circumstances, the above finding offers no support for the notion that differences in syntactic structure alone produced higher recognition memory in the prose condition.

To us, the most plausible explanation of the interference effect stems from the levels of processing interpretation of these findings. It appears that preschoolers process information at a "deeper" level of analysis when it is presented in prose than rhyme form. As mentioned previously, the similarity in sound that is inherent in a nursery rhyme may predispose them to attend to phonological rather than semantic features. Because semantic processing is known to produce a more permanent memory trace than does phonetic processing (Geis & Hall, 1976), such a difference explains the intercondition discrepancy in level of recognition memory.

Given that these results are replicated across a wider range of rhyming and nonrhyming materials, they may have important implications for the use of rhyme in various learning situations. Because its presence apparently increases young children's liking of verbal material, it may increase the amount of attention they pay to certain aspects of that material. On the other hand, such increases in attention may be made at the expense of better comprehension of the semantic messages conveyed.

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Table 1

Example of Stimulus Materials Used in

Rhyme and Prose Conditions

Stimulus Materials	
Nursery Rhyme	Prose Version
Old Dame Trot set out to the fair. With her cat on her shoulder she saw the folks there.	Old Dame Trot set out to the fair. When she came back her cat was washing a dish.
She bought her some shoes of a very bright red. When she came back she found puss in bed.	She bought her some shoes of a very bright red. When she came back puss was sewing on silk.
She went to the dairy to buy her some milk. When she came back puss was sewing on silk.	She went to the dairy to buy her some milk. When she came back she found puss in bed.
She went to the fish shop and bought her some fish. When she came back her cat was washing a dish.	She went to the fish shop and bought her some fish. With her cat on her shoulder she saw the folks there.

Table 2

Percent of Correct Retention According to

Condition and Question Type

Question Type	Condition	
	Prose	Rhyme
Recognition	78%	54%
Recall	34%	39%